

APPARATUS AND METHOD FOR IN-SITU ADJUSTMENT OF LIGHT  
TRANSMISSION IN A PHOTOLITHOGRAPHY PROCESS

ABSTRACT OF THE DISCLOSURE

An adjustable, in-situ photolithography process is  
5 taught, where incident exposure light is passed through two  
polarizers; the first polarizer capable of altering its  
polarization direction, during exposure, relative to the  
polarization direction of the second polarizer, in order to  
enhance the contrast of a patterned image projected on a  
10 semiconductor wafer. The second polarizer in the optical  
train is a photo mask transparent substrate impregnated with  
colloidal crystals that are aligned in a fixed,  
predetermined direction by magnetic field. The photo mask  
may also contain a silicon compound for phase shifting the  
15 incident exposure light to further enhance the image  
contrast.

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